

## **REMARKS**

Reconsideration and withdrawal of the rejections of the claimed invention is respectfully requested in view of the amendments, remarks and enclosures herewith, which place the application in condition for allowance.

### **I. STATUS OF CLAIMS AND FORMAL MATTERS**

Claims 1-13 are pending in this application. No new matter has been added by this amendment.

It is submitted that the claims, herewith and as originally presented, are patentably distinct over the prior art cited in the Office Action, and that these claims were in full compliance with the requirements of 35 U.S.C. § 112. The amendments of the claims, as presented herein, are not made for purposes of patentability within the meaning of 35 U.S.C. §§§§ 101, 102, 103 or 112. Rather, these amendments and additions are made simply for clarification and to round out the scope of protection to which Applicants are entitled.

### **II. THE OBJECTIONS TO THE SPECIFICATION, ABSTRACT AND CLAIMS HAVE BEEN OVERCOME**

It is believed that the applicants' amendment to the specification, abstract and claims 10-13 have addressed the Examiner's objections and that these objections can be withdrawn.

### **III. THE 35 U.S.C. 112, 2<sup>nd</sup> PARAGRAPH REJECTION HAS BEEN OVERCOME**

Claims 4, 5 and 10-13 were rejected as allegedly indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regards as the invention. The applicants request reconsideration of this rejection for the following reasons. It is believed that the present amendments address these rejections of the claims.

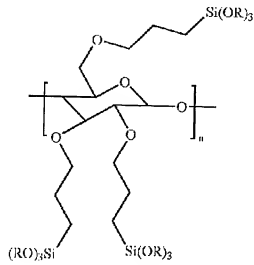
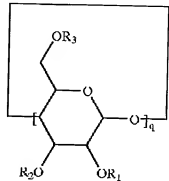
### **IV. THE 35 U.S.C. 103(a) REJECTION HAS BEEN OVERCOME**

Claims 1-13 were rejected as allegedly being obvious by Yim et al. (US 2003/0055134 – "Yim"), in view of Lambert et al. (Chem. Mater. 2003 – "Lambert"). The applicants request reconsideration of this rejection for the following reasons.

#### **All Limitations of the Invention Were Not Taught**

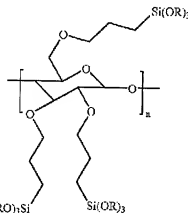
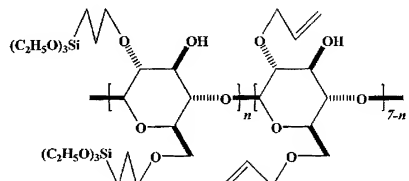
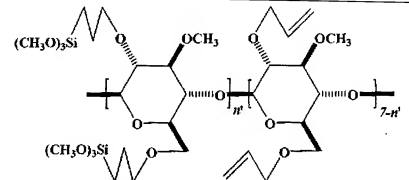
In order to establish a *prima facie* case of obviousness, all claim limitations must be taught or suggested by the prior art or is within the knowledge of those of ordinary skill in the art. See *MPEP 2143.03*. However, even if the Examiner's interpretation of Yim and Lambert were accepted, all of the applicants' claim limitations are not taught or suggested.

The Office Action acknowledges that Yim fails to teach a cyclodextrin compound with a propyl spacer between the trialkoxysilane and the oxygen at the C-2, C-3, and C-6 position of the glycoside (see comparative chart below):

Cyclodextrin of the invention	Cyclodextrin of Yim
	
<p>R represents the same or different C<sub>1-6</sub> alkyl group</p>	<p>R<sub>1</sub>, R<sub>2</sub> and R<sub>3</sub> are independently hydrogen atom, halogen atom, C<sub>2-30</sub> acyl group, C<sub>1-20</sub> alkyl group, C<sub>3-10</sub> alkene group, C<sub>2</sub> alkyne group, C<sub>7-20</sub> tosyl group, C<sub>1-10</sub> mesyl group, C<sub>0-10</sub> amino group or azido group, C<sub>0-10</sub> phosphorous group, C<sub>3-20</sub> imidazole group or pyridino group, C<sub>3-10</sub> cycloalkyl group, C<sub>6-30</sub> aryl group, C<sub>1-20</sub> hydroxy alkyl group, carboxyl group, C<sub>1-20</sub> carboxy alkyl group, glucosyl group or maltosyl group, C<sub>1-10</sub> cyano group, C<sub>2-10</sub> carbonate group, C<sub>1-10</sub> carbamate group, or silicon compounds represented by Si<sub>r1</sub>r<sub>2</sub>r<sub>3</sub>, wherein r<sub>1</sub>, r<sub>2</sub> and r<sub>3</sub> are independently C<sub>1-5</sub> alkyl group, C<sub>1-5</sub> alkoxy group, or C<sub>6-20</sub> aryl group.</p>

However, even when combining Lambert in the manner described in the Office Action, the combination of Yim and Lambert still would not result in the applicants' claimed invention.

Lambert teaches only the derivatization of the hydroxyl groups at the C-3 and C-6 positions of the glycosides and even then only one every other glycoside (see comparative chart below):

Cyclodextrin of the invention	Cyclodextrin of Lambert
 <p>R represents the same or different C<sub>1-6</sub> alkyl group (all hydroxyl groups are substituted)</p>	<div data-bbox="424 289 942 592">  <p>C-3 OH is unsubstituted      C-2 and C-6 not silylated C-3 is unsubstituted</p> </div> <div data-bbox="424 618 942 921">  <p>C-3 is not silylated      C-2 and C-6 not silylated C-3 is unsubstituted</p> </div>

Therefore, combining Yim and Lambert still does not teach all of the applicants' claim limitations as the combination at best would only teach a cyclodextrin which is partially substituted with a alkoxypropyl groups, NOT complete substitution.

In addition, the inventions of Yim and Lambert are directed toward entirely different purposes, i.e. Yim is directed toward providing interlayer insulating film for semiconductor

devices whereas Lambert is directed toward removing impurities from water or for recovering materials dissolved in water as effective as activated charcoal.

If the Lambert reference is to be modified, it cannot be modified to the extent that it would destroy the principal operation of the prior art invention being modified. *See MPEP 2143.01* ("If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959).")

As the purpose of Lambert is for use in water, some amount of hydrogen bonding appears to be necessary for this function, hence the unsubstituted or non-silylated hydroxyl groups at C-3 of Lambert; full silylation would destroy this feature of their invention.

#### **Yim and Lambert Does Not Represent a Finite Number of Solutions**

Up to this point in the discussion, the applicants' response has been based on the hypothetical situation that the combination of Yim and Lambert was proper. However, the applicants also assert that even if all elements of the applicants invention was taught, the combination of Yim and Lambert was in error as this combination did not represent a finite number of identified, predictable solutions which had a reasonable expectation of success.

While the actions during the PCT phase of an application is not binding on the USPTO, it is noted that Yim was first cited in the International Search Report (ISR) for the PCT application (WO 2005-078743) upon which this application is based as being an "A" reference, i.e. a document defining the general state of the art which is *not considered to be of particular relevance*, against substantially the same scope of claims as is currently under examination.

While specific reasons were not given as to why Yim was deemed to not be considered of particular relevance, the applicants note that it is a mischaracterization to merely refer to the difference in the silyl group between the applicants' claimed invention and that of Yim in isolation.

To the extent that one of ordinary skill in the art would have been motivated to modify the teachings of Yim, there is no direction as to why one of ordinary skill in the art would have: (1) honed in on the hydroxyl groups of the glycoside units as a source of derivatization (e.g. why not open up one of the glycoside rings; or substituted one glycoside for another (e.g. (glucose for

mannose)), etc.); (2) once honing in on the hydroxyl groups, to select the proper combination of hydroxyl groups to modify, i.e. mono-, di- or tri-substitution; (3) once selecting the proper substitution combination, to select the proper  $R_1$ ,  $R_2$  or  $R_3$  group for the substitution (these variables are not limited merely to alkoxysilylpropyl groups).

As such the teaching of Yim represented a virtually unlimited number of possible solutions to the problem and as indicated by Lambert, even partial substitution would not have given one of ordinary skill in the art a reasonable expectation of success for the necessary modification even if proper identification had been provided within Yim and Lambert.

### **Evidence of Secondary Considerations**

Part of the evaluation of the *Graham*-factors for determining *prima facie* obviousness includes evaluating evidence of secondary considerations. However, the applicants evidence provided in the specification did not appear to be considered.

Applicants' Comparative Example 2 which formed a nanopore-containing low dielectric film using heptakis (2,3,6-triacetyl-beta-cyclodextrin) is outside the scope of the applicants' claims and clearly within the definition of cyclodextrins used within Yim and as such serves as relevant evidence for comparative purposes.

Whereas the films of the invention displayed a porosity of 51.3% and a dielectric constant of 1.54 k when using a cyclodextrin of the invention as the nanoparticulate porogen (see Example 1), a film which is within the scope of teaching of Yim only showed a porosity of 29.7% with a dielectric constant of 1.90 k. Therefore, the applicants' claimed invention showed unexpectedly superior porosity and dielectric constant when compared to the invention of Lim.

In addition, the applicants' claimed invention also exhibits unexpectedly superior porosity and dielectric constant when applied to polymethylsilsequioxane (MSSQ) precursor, which has relatively fewer silanol groups, while Yim shows poorer porosity and dielectric constant when applied to MSSQ precursor (see applicants' Comparative Example 3)

### **Conclusion**

Therefore, the combination of Yim and Lambert does not render the applicants' claimed invention to be obvious for any of the above reasons, i.e. all limitations have not been taught or

suggested, Yim and Lambert do not represent a finite number of solutions to the problem solved;  
or Yim and Lambert do not suggested the unexpected results disclosed by the applicants.

**CONCLUSION**

In view of the remarks and amendments herewith, the application is believed to be in condition for allowance. Favorable reconsideration of the application and prompt issuance of a Notice of Allowance are earnestly solicited. The undersigned looks forward to hearing favorably from the Examiner at an early date, and, the Examiner is invited to telephonically contact the undersigned to advance prosecution. The Commission is authorized to charge any fee occasioned by this paper, or credit any overpayment of such fees, to Deposit Account No. 50-0320.

Respectfully submitted,  
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